

Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Original) A photothermographic material comprising a support having thereon, one or more imaging layers comprising:

- a. a photosensitive silver halide,
- b. in reactive association with said photosensitive silver halide, a non-photosensitive source of reducible silver ions,
- c. a reducing agent for said reducible silver ions, and
- d. one or more X-radiation-sensitive phosphors each of which emits in the range of from about 100 to about 410 nm, said X-radiation-sensitive phosphor comprising a rare earth phosphate, a yttrium phosphate, a strontium phosphate, or a strontium fluoroborate.

2. (Original) The material of claim 1 comprising a cerium activated rare earth phosphate, a yttrium phosphate, or a europium activated strontium fluoroborate as said X-radiation-sensitive phosphor.

3. (Currently amended) The material of claim 1 wherein said X-radiation-sensitive phosphor is a rare earth phosphate or yttrium phosphate that has a zircon or monazite crystal structure.

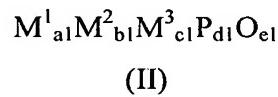
4. (Original) The material of claim 2 comprising a europium activated strontium fluoroborate having a composition defined from the following Structure (I) as said X-radiation-sensitive phosphor:



(I)

wherein M is strontium, or a mixture of metals containing strontium and one or more of the metals Mg or Ca, F is fluoride, B is boron, O is oxygen, $0 < a \leq 1.5$, $0 < b \leq 0.5$, $2 < c \leq 5$, $3 < d \leq 7$, $0 < e \leq 0.25$, and $0 < a + e \leq 2$.

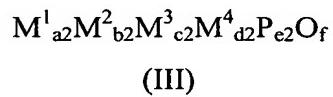
5. (Original) The material of claim 1 comprising a strontium phosphate having a composition defined by the following Structure (II) as said X-radiation-sensitive phosphor:



wherein M^1 and M^2 are different metals selected from the group consisting of Mg, Ca, Sr, and Zn, M^3 is one or more of the metals Eu, Mn, Sn, and Pb, $0 < \text{a}1 \leq 1$, $0 < \text{b}1 \leq 1$, $0 < \text{c}1 \leq 0.2$, $0 < \text{a}1 + \text{b}1 + \text{c}1 \leq 2$, $0 < \text{d}1 \leq 4$, and $0 < \text{e}1 \leq 10$.

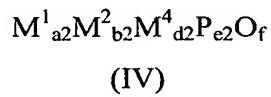
6. (Original) The material of claim 1 comprising a cerium and strontium activated rare earth phosphate or yttrium phosphate as said X-radiation-sensitive phosphor.

7. (Original) The material of claim 6 comprising a cerium and strontium activated or co-activated rare earth phosphate or a cerium and strontium activated yttrium phosphate having a composition defined by the following Structure (III) as said X-radiation-sensitive phosphor:



wherein M^1 is lanthanum or yttrium, M^2 is cerium, M^3 is gadolinium, ytterbium, or a mixture thereof, M^4 is strontium or a strontium-containing mixture of alkaline earth metals, $0 < \text{a}2 \leq 1$, $0 < \text{b}2 \leq 0.6$, $0 \leq \text{c}2 \leq 0.5$, $0 \leq \text{d}2 \leq 0.1$, $0 < \text{a}2 + \text{b}2 + \text{c}2 + \text{d}2 \leq (\text{e}2 + 1)$, and $0 < f \leq (4.5\text{e}2)$.

8. (Original) The material of claim 7 wherein said X-radiation-sensitive phosphor has a monazite crystal structure and a composition that is defined by the following Structure (IV):



wherein M¹ is lanthanum, M² is cerium, M⁴ is strontium or a strontium-containing mixture of alkaline earth metals, $0.5 < a_2 \leq 1$, $0.005 < b_2 \leq 0.3$, $0 \leq d_2 \leq 0.1$, $0 < a_2 + b_2 + d_2 \leq (e_2 + 1)$, and $(3.5e_2) < f \leq (4.5e_2)$.

9. (Currently amended) The material of claim 1 comprising LaPO₄:Ce (P-1), YPO₄:Ce (P-2), SrB₄O₇:Eu,F (P-3), BaMgAl₁₀O₁₉:Ce (P-4), and Sr₂P₂O₇:Eu (P-5), or a mixture of two or more these compounds, as said X-radiation-sensitive phosphor(s).

10. (Original) The material of claim 1 wherein said X-radiation-sensitive phosphor is present in an amount of from about 1 to about 20 mole per mole of total silver and the total silver present in said material is at least 0.002 mol/m².

11. (Original) The material of claim 1 wherein said photosensitive silver halide and said X-radiation-sensitive phosphor are in the same imaging layer.

12. (Original) The material of claim 1 comprising the same or a different imaging layer(s) on both sides of said support.

13. (Original) The material of claim 1 wherein said binder is a hydrophobic binder.

14. (Original) The material of claim 1 wherein said binder is a hydrophilic binder or a hydrophobic polymer applied as a water-dispersible polymeric latex.

15. (Original) The material of claim 1 wherein said photosensitive silver halide is tabular silver halide containing an iridium dopant.

16. (Original) The material of claim 1 wherein said non-photosensitive source of reducible silver ions is:

- a) a silver salt of a fatty acid having from 10 to 30 carbon atoms, or a mixture of said silver salts, at least one of which is silver behenate,
- b) a silver salt of a compound containing an imino group, or a mixture of said silver salts, at least one of which is silver benzotriazole, or
- c) a mixture of a) and b).

17. (Original) The material of claim 1 wherein said one or more imaging layers further comprise a spectral sensitizing dye, an acutance dye, a toner, a co-developer, or a contrast-enhancing agent.

18. (Original) The material of claim 1 wherein said photosensitive silver halide has been chemically sensitized with a sulfur-containing chemical sensitizing compound, a selenium-containing chemical sensitizing compound, a tellurium-containing chemical sensitizing compound, or a gold(III)-containing chemical sensitizing compound, or mixtures of any of these chemical sensitizing agents.

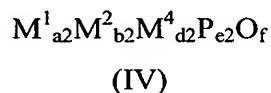
19. (Original) The material of claim 1 wherein said imaging layer comprising said X-radiation-sensitive phosphor has a dry coating weight of at least 5 g/m².

20. (Original) An X-radiation sensitive photothermographic material comprising a support having on one side thereof, a photothermographic imaging layer having a dry coating weight of from about 300 to about 400 g/m², said imaging layer comprising a binder and in reactive association:

- a. a photosensitive silver bromide or silver bromoiodide, or mixture thereof, that has been chemically sensitized with a sulfur-containing chemical sensitizing compound, a selenium-containing chemical sensitizing compound, a tellurium-containing chemical sensitizing compound, or a gold(III)-containing chemical sensitizing compound, or mixtures of any of these chemical sensitizing agents,
- b. in reactive association with said photosensitive silver halide, a non-photosensitive source of reducible silver ions comprising silver behenate, silver benzotriazole, or a mixture thereof,

- c. a reducing agent for said reducible silver ions that comprises a hindered phenol or an ascorbic acid reducing agent, and
- d. one or more X-radiation-sensitive phosphors, each of which emits in the range of from about 100 to about 410 nm, said one or more X-radiation-sensitive phosphors being present in a total amount of from about 0.5 to about 20 mole per mole of total silver, the amount of total silver being from about 1 to about 5 g/m², and

said X-radiation-sensitive phosphor having a monazite crystal structure and a composition that is defined by the following Structure (IV):



wherein M¹ is lanthanum, M² is cerium, M⁴ is strontium or a strontium-containing mixture of alkaline earth metals, 0.5 < a2 ≤ 1, 0.005 < b2 ≤ 0.3, 0 ≤ d2 ≤ 0.1, 0 < a2 + b2 + d2 ≤ (e2 + 1), and (3.5e2) < f ≤ (4.5e2).

21. (Original) The material of claim 20 further comprising the same or a different photothermographic imaging layer on the backside of said support.

22. (Original) A method for forming a visible image comprising:
(A) imagewise exposing the photothermographic material of Claim 1 to X-radiation to form a latent image, and
(B) simultaneously or sequentially, heating said exposed photothermographic material to develop said latent image into a visible image.

23. (Original) The method of claim 22 for providing a radiographic image of a human or animal subject.

24. (Original) The method of claim 22 comprising using said visible image for a dental diagnosis.

25. (Original) A method for forming a visible image comprising:

(A) imagewise exposing the photothermographic material of Claim 20 to X-radiation to form a latent image, and

(B) simultaneously or sequentially, heating said exposed photothermographic material to develop said latent image into a visible image.